Givaudan

Oregon Manufacturing Extension Partnership

Givaudan-Silverton Seeks to Improve Energy Efficiency with Lean

Client Profile:
Givaudan-Silverton (GS) is the world's largest supplier of flavors and fragrances. The GS plant in Silverton, Oregon produces a wide array of dry vegetable and fruit based flavors and ingredients. These value added products are used in formulations developed primarily for the consumer market. Established in Medford, Oregon in 1977, the company built and moved to the Silverton plant in 1995 and employs about 40 people.

Situation:
Seeking ways to improve the energy efficiency of Oregon manufacturers, the Oregon Manufacturing Extension Partnership (OMEP) and the Energy Trust of Oregon (ETO) joined efforts on two pilot projects that combined Lean Manufacturing with energy and sustainability. While traditional Lean methods focus on product and information flow, technical energy assessments typically focus on reducing energy use through discrete solutions such as equipment changes, installation of energy saving devices / products, equipment maintenance, and recommended energy-saving behaviors. Although both approaches result in energy reductions, both, OMEP and ETO believed the natural gap and opportunity lay in targeting the energy wastes associated with and embedded within manufacturing processes. They believed that, by working together, they could more effectively identify and address energy-saving opportunities than either could independently. An additional benefit to partnership is that ETO has the ability to provide financial incentives to companies for specific types of energy-related improvements. This helps companies to make needed changes and helps ETO fulfill its mission. The partnership with OMEP gives ETO access to companies and a way to unearth and address significant energy improvements in industry.
Although GS had done considerable work with Lean already, the company was interested in looking at potential opportunities for improving energy efficiency. Like most food processors, GS's production methods required substantial energy use. The company's progressive management team offered their facility as a pilot project site.

Solution:
During the project, OMEP conducted an 'eVSM' of the entire facility using an enhanced Value Stream Mapping (VSM) tool. As with traditional VSM, the tool mapped product and information flow and identified areas of waste paying particular attention to energy and resource use at each process step. An ETO energy specialist attended the VSM sessions to provide input with respect to energy used within each process. The energy specialist also conducted a traditional energy analysis. As expected, there were several instances where energy waste and energy-saving opportunities were uncovered that would not have been identified had OMEP and ETO been working independently.
The traditional energy analysis identified eight project improvement opportunities primarily revolving around lighting and electric motor upgrades. The expanded VSM, which brought attention to energy and material use throughout the entire production process, revealed two opportunities which provided

the most significant benefit to the company making it financially palatable to make the upgrades identified by the energy analysis. These two findings were both driven by changeover/setup reduction. A focus on redesign of a material conveyor system to substantially reduce changeover/cleanup time translated to a change from a high horsepower master hydraulic power system to a nominal number of low horsepower equipment specific electric motors. They also recognized a need to change from a standard mechanical motor design to an inverter duty motor with a VFD drive system on a major piece of equipment. This will allow 'change on the fly' speed controls rather than extensive mechanical tear downs to change speeds for different product runs.

Results:
Estimated:
* $500,000 in cost savings.
* $188,000 in equipment upgrades.

Testimonial:
"Givaudan-Silverton is a firm believer in the benefits of Lean manufacturing processes. Participation in the Lean/Green/Energy project confirmed to us that Lean processes can be applied in other areas of the business besides manufacturing. As a result of the 'eVSM' process, the installation of a new lighting system throughout the plant will yield a 20 percent annual electricity savings."

Mark Sheppard, Operations Manager